

# Patent Abstracts of Japan

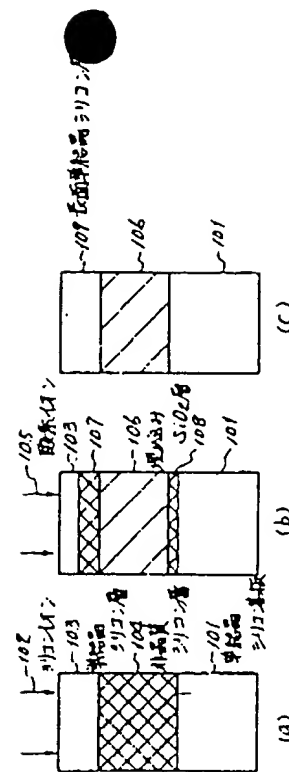
PUBLICATION NUMBER : 63217657  
PUBLICATION DATE : 09-09-88  
APPLICATION DATE : 05-03-87  
APPLICATION NUMBER : 62051306

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INT.CL. : H01L 27/12 H01L 21/265

TITLE : MANUFACTURE OF  
SEMICONDUCTOR SUBSTRATE



ABSTRACT : PURPOSE: To render uniform the characteristics of integrated circuits to be built on a single-crystal silicon substrate by a method wherein ions other than oxygen ions are first implanted into the substrate and oxygen ions are next implanted into the substrate.

CONSTITUTION: This method consists of two processes; a process of implanting ions of an element other than oxygen into a single-crystal silicon substrate 101 for the formation of an amorphous region (amorphous silicon layer 104) and a subsequent process of implanting oxygen ions 105 into the single-crystal silicon substrate 101. That is, prior to the implantation of oxygen ions 105, silicon ions 102 are implanted for the formation of an amorphous silicon layer 104 in the single crystal silicon substrate 101. This enables the control of a channeling phenomenon the oxygen ions 105 may present, which results in a single-crystal silicon layer 103 uniform in thickness and excellent in crystallinity, a buried  $\text{SiO}_2$  layer 106 uniform in thickness, and an excellent oxide film/silicon interface, all covering the entire surface of the silicon substrate 103. By applying this method, integrated circuits of uniform characteristics may be built on the single-crystal silicon substrate 101.

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